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[G-17] COPPER PRICE AND SUPPLY IN CANADA

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COPPER PRICE AND SUPPLY IN CANADA

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FOREWORD

Following discussions with representatives of the Canadian business community, the Prices and Incomes Commission called a National Conference on Price Stability to obtain a consensus on a program of price restraint. Those present at the conference, held in Ottawa on Feb. 9-10, indicated that, in their view, Canadian business firms would be willing to exercise a meaningful degree of restraint in their pricing policies in 1970. There was broad agreement that business firms generally, if called upon to do so, would reduce the number and size of price increases they would normally make in 1970 and would ensure that price increases were clearly less than the amount needed to cover increases in costs.

It was agreed that the Commission would keep export industries under review and when developments in one of these industries impaired the general price restraint program appropriate solutions would be sought.

At a Federal-Provincial Conference of First Ministers, held in Ottawa on Feb. 16-17, 1970, the Heads of Government endorsed the Commission's plan. Governments expressed the hope that sanctions would not be required but agreed that if necessary they would use such means as are within their control to deal with cases of serious non-compliance with the pricing criteria.

INTRODUCTION

In late December, 1969, Canadian copper producers announced an increase in the domestic producer price for refined copper effective Jan. 2, 1970, from 57 to 66 cents per pound, a rise of 16 per cent. Canadian copper fabricators immediately announced that they would increase their prices to reflect the higher price for copper. The Prices and Incomes Commission was actively seeking the support of the business community for a price restraint program during 1970 and it was imperative that major price increases be avoided. At Government request, copper producers suspended their announced price increase until March 1, 1970, contributing to the constructive atmosphere in which the National Conference on Price Stability was held.

The position of copper producers was reconsidered following the conference. During 1969 the domestic producer price for refined copper had increased from 45 to 57 cents per pound, an increase of 27 per cent. The Government and the Commission considered a further copper price increase of 16 per cent should be avoided at a time when business firms generally were being asked to restrain price increases. On Feb. 27 the Minister of Industry, Trade and Commerce announced that producers would increase the price of refined copper by two cents per pound to 59 cents on March 1 accompanied by an arrangement to supply 23,500 tons of refined copper monthly to Canadian users.

The Prices and Incomes Commission in commenting on the Minister's announcement said:

"The Closing Statement of the National Conference on Price Stability recognized that domestic price criteria, which relate price increases to cost increases, should not be applied to goods sold mainly in export markets. It also indicated, however, that the Prices and Incomes Commission would keep the position of export industries under review and would seek appropriate solutions in cases of impairment of the general price restraint program as a result of developments in such industries.

Copper is a special case. It is an important export commodity but at the same time one where, under arrangements worked out between the government and the industry, the bulk of domestic consumption has been supplied over the last several years at a Canadian price substantially below the world price. About 60 per cent of Canadian copper production is exported as concentrates and refinery shapes at a world price which is currently in the vicinity of 80 cents (Canadian) per pound. The other 40 per cent is sold to domestic fabricators at a domestic producers' price.

In the Commission's view an increase in the domestic producers' price of copper of anything like the magnitude originally announced would have resulted in substantial increases in the domestic prices of fabricated copper products and would clearly have impaired the general price restraint program. On the other hand the Commission recognizes that the extent to which the domestic price of copper can be maintained below the world price is subject to practical limits because of the serious problems of supply allocation posed by any multiple-price system.

The increase in the domestic price of copper announced today, which amounts to $3\frac{1}{2}$ per cent, brings this price to 59 cents per pound. At this level the Canadian domestic price of copper remains the lowest in the world and lower than the United States producer price of 61 cents (Canadian) per pound.

On balance the Commission takes the view that a price increase of this magnitude would not seriously impair the general restraint program. It is recognized moreover, that the industry co-operated in temporarily suspending any price increase and that it faces complex pricing and supply-allocation problems not encountered in other industries. The Commission intends to review any price increases announced by copper fabricators following this action to determine whether they meet the general pricing criteria. The Commission will also keep the position of the entire copper industry under review during 1970 as part of its continuing surveillance of developments in export industries generally."

The United States domestic producer price for refined copper which had been equal to the 57 cents per pound Canadian price in December, 1969, was increased four cents per pound in January, 1970, and a further four cents per pound in April, 1970. In April, therefore, the Canadian price of 59 cents per pound was six cents less than the U.S. price of 65 cents (Canadian). Canadian producers sought to increase the Canadian price to the U.S. level but were again dissuaded by the Government and adhered to the 59-cent price.

It became apparent in April that domestic price and supply arrangements for refined copper were imposing severe strains on both copper producers and consumers. After discussion with Government departments, the Prices and Incomes Commission announced on April 23, 1970, that it would undertake this review of the situation.

This review is in three chapters. The first chapter discusses three general aspects of copper price and supply in Canada:

1. The background to copper price and supply arrangements.
2. The impact of present copper price and supply arrangements on producers, processors, fabricators, manufacturers, and on the general price restraint program.
3. The problems of price, supply and marketing created in Canada by a tiered-pricing system for copper.

Price increases made during 1970 by copper fabricators are reviewed in the second chapter to determine whether they meet the Commission's general pricing criteria. The third chapter contains the conclusions reached in this review.

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This is the largest review undertaken to date by the Commission. Meetings were held with senior officers of 15 copper-producing companies, 15 copper-fabricating firms, two metal dealers, six manufacturing firms and with officials of the Canadian, British Columbia and United States governments. Some 20 firms submitted data to the Commission on markets, prices, costs, financial performance and other aspects of their operations as requested.

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CHAPTER I

COPPER PRICE AND SUPPLY IN CANADA: BACKGROUND

The recurring problems of pricing and supplying refined copper to Canadian consumers have been influenced by the structure of the industry in Canada, this country's position in the world copper market, the pricing of copper here and abroad and government involvement in the supply of refined copper to domestic industries.

The Copper-Producing and Copper-Consuming Industries

The production of copper occurs in four stages: Exploration and development, mining, smelting and refining. The structure, organization and geographic development of copper production are important determinants of present arrangements for supplying copper-using industries in Canada.

There are presently some 90 producing copper mines in Canada. These mines can be divided into four groups according to the price-supply arrangement applicable to their copper output:

Domestic marketers of refined copper: Noranda Mines Ltd. (Noranda); The International Nickel Co. of Canada Ltd. (Inco); Hudson Bay Mining and Smelting Co. Ltd. (Hudson Bay); Texas Gulf Sulphur Co. (Texas Gulf). These firms operate 22 mines accounting for some 51 per cent of Canadian copper production.

Contract shippers: Some 30 mines east of the Rocky Mountains whose output is smelted, refined and sold on a contract basis by Noranda, accounting for about 24 per cent of production.

Eastern exporters: Currently some 23 mines east of the Rocky Mountains who export their output as concentrate or matte, accounting for about seven per cent of production.

Western concentrate exporters: 15 mines west of the Rocky Mountains who export their output as concentrate, usually to Japan, accounting for approximately 18 per cent of production.

Mines in Eastern Canada, other than operations of Noranda, Inco, Texas Gulf, Hudson Bay and Falconbridge Nickel Mines Ltd., tend to be small underground operations processing less than 3,000 tons of ore per day. Copper mining in British Columbia is changing radically with the advent of large, open-pit operations. Open-pit mining offers significant operating economies compared with underground mining, but the efficient scale of operation and initial capital outlay are much larger.

Many copper ores are of a low grade, averaging less than two per cent or 40 pounds of copper per ton of ore. Ores are crushed, ground with water and then separated, usually by a flotation process, to produce copper concentrate. This milling operation generally occurs at the mine site as costs of shipping ore are prohibitive. Copper concentrate is shipped to smelters and refineries for processing into usable copper.

Mines without their own processing facilities contract to sell their concentrate to smelters and refiners. Canadian, Japanese, European and to a lesser extent American smelters and refiners compete for sales contracts to process the output of Canadian concentrate producers. The processor awarded the contract offers the most favorable combination of process charges, loss deductions, payments for other metals in the concentrate, delivery arrangements and payment schedules.

Small copper producers in Eastern Canada cannot economically justify their own processing facilities. Noranda expanded its processing facilities in the late 1940s to handle the output of these mines on a contract basis. Noranda is the only firm engaged in the contract-processing business and owns two of the six smelters and one of the two refineries in Canada.

The process generally used for smelting of the common sulphide copper ores begins by melting concentrate in a large reverberatory type furnace. Two layers of liquid result, a "matte" of copper and iron sulphides which also contains precious metals, below a layer of slag. This matte is combined with flux in a converter where air under pressure is forced through the molten bath oxidizing the iron to form a slag, combining with the sulphur to form sulphur dioxide which is discharged, and leaving molten "blister" copper ready for further refining.

Most copper is refined electrolytically. Blister copper is heated in an anode furnace to remove most impurities and control the oxygen content before being cast into anodes for electrolysis. Anodes are interspaced with thin sheets of pure copper and suspended in tanks of warm diluted sulphuric acid and copper sulphate. An electric current passed through the tanks slowly dissolves the anodes, depositing copper on the pure copper sheets which act as cathodes. Pure copper deposited on the cathodes is then remelted and cast into commercial shapes such as wire bar, ingot bar, cakes and billets.

The Smelting, Refining and Marketing
of Copper in Canada

Smelters

1. Falconbridge Nickel Mines Ltd., Falconbridge, Ont., produces copper-nickel matte from concentrate produced in the company's own mines for shipment to the Falconbridge refinery in Norway.
2. Gaspé Copper Mines Ltd., Murdochville, Que., (owned by Noranda Mines Ltd.) produces copper anodes from concentrate from the company's own mine and from contract shippers.
3. Hudson Bay Mining & Smelting Co. Ltd., Flin Flon, Man., produces blister copper cakes from concentrate of its own mines and two independent mines.
4. The International Nickel Co. of Canada Ltd., Copper Cliff, Ont., produces blister copper from concentrate from its own mines.
5. The International Nickel Co. of Canada Ltd., Coniston, Ont., produces nickel-copper matte from concentrate from its own mines.
6. Noranda Mines Ltd., Noranda, Que., produces copper anodes from concentrate of its own mines and contract shippers.

Refineries

1. Canadian Copper Refiners Ltd., Montreal, (owned by Noranda Mines Ltd.) produces electrolytic copper in wire bars, ingot bars, ingots, cathodes, cakes and billets from output of Gaspé, Noranda and Hudson Bay smelters and from copper scrap.

2. The International Nickel Co. of Canada Ltd., Copper Cliff, Ont., produces electrolytic copper in cathodes, wire bars, cakes, billets and ingot bars from output of the company's own smelters.

Marketers

1. Noranda Sales Corp. markets copper produced by Canadian Copper Refiners Ltd. for Noranda Mines Ltd., contract shippers to Noranda, and copper produced from scrap purchased by the refinery.
2. The International Nickel Co. of Canada Ltd. markets copper produced in its own refinery.
3. Texas Gulf Sulphur Co. markets copper produced in its own mine which has been smelted and refined by Noranda on a custom basis.
4. Hudson Bay Mining & Smelting Co. Ltd. markets copper produced in its own mines, smelted in its own smelter and refined on a custom basis by Noranda.

Currently some 50 per cent of refined copper is exported. The balance is consumed in Canada by the copper fabricating industry. This industry has two principal sectors - brass mills and wire and cable plants. Brass mills make copper and copper alloy sheet, strip, rods, plate and tube.

The principal products of wire and cable plants are building wire, magnet wire, power transmission cable and communication cable. The manufacturing process begins with wire bars which are heated and then rolled into coils of wire rod. Four wire and cable makers have wire rod mills enabling them to purchase copper in the form of wire bar. Eleven wire and cable makers not having rod mill

facilities must purchase copper wire bar and have it converted to rod on a toll basis or must purchase rod direct, in either case from one of the four rod mills.

A small amount of refined copper is consumed by brass and bronze foundries and by ingot makers. These firms have their own melting facilities and use more scrap than new copper in their operations. This portion of the copper-using industry has been excluded from this review.

Markets for fabricated copper products are varied. Flat products such as sheet and strip are largely used for auto parts, primarily radiators, and for architectural purposes. Tubular products are mainly used in construction, with much of the balance used by manufacturers of plumbing and heat-transfer equipment. The major output of wire and cable plants goes to electric and communications utilities. Other important markets are electrical equipment and appliance manufacturers and the extractive industries.

Copper Fabricators in Canada

Brass Mills

1. Anaconda American Brass Ltd., Toronto.
2. Noranda Metal Industries Ltd., Montreal (owned by Noranda Mines Ltd.).
3. Ratcliffs (Canada) Ltd., Richmond Hill, Ont.
4. Wolverine Tube Division, Calumet and Hecla (Canadian) Ltd., London, Ont.

Wire and Cable Plants (With Rod Mills)

1. Canada Wire and Cable Co. Ltd., Toronto (owned by Noranda Mines Ltd.).
2. Northern Electric Co. Ltd., Montreal.
3. Phillips Cables Ltd., Brockville, Ont.
4. Pirelli Cables Ltd., St. Jean, Que.

Wire and Cable Plants (Without Rod Mills)

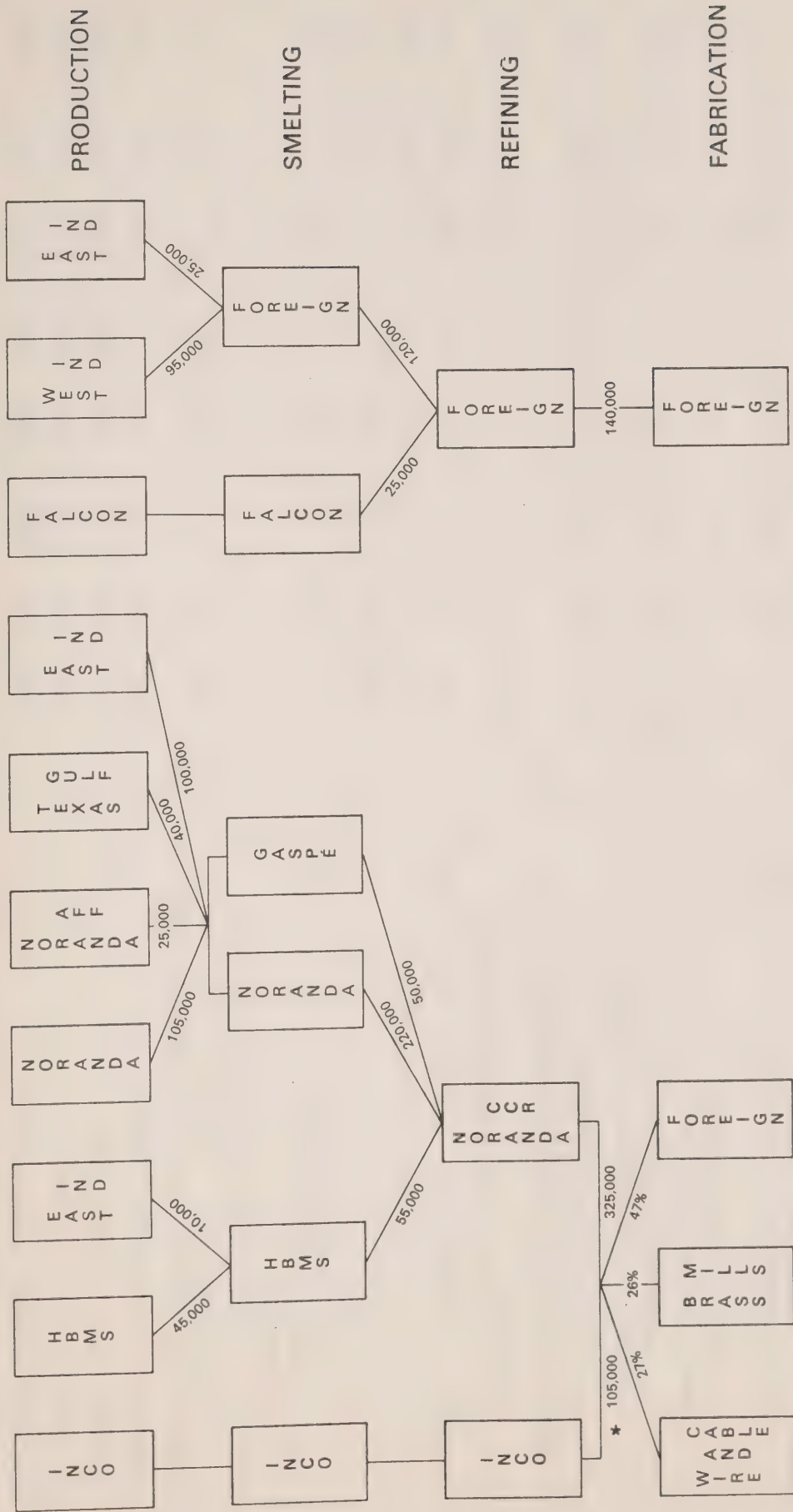
1. Aerofin Corp. (Canada) Ltd., Gananoque, Ont.
2. Alcan Canada Products, Bracebridge, Ont.
3. Boston Insulated Wire and Cable Co. Ltd., Hamilton, Ont.
4. Cabletech Wire Co. Ltd., Stouffville, Ont.
5. Canadian General Electric Co. Ltd., Peterborough, Ont.
6. Fabricon Manufacturing Ltd., Trenton, Ont.
7. General Wire and Cable Co. Ltd., Cobourg, Ont.
8. ITT Wire and Cable, St. Jerome, Que.
9. North American Wire Industries Co. Ltd., Lachine, Que.
10. Pyrotenax of Canada Ltd., Trenton, Ont.
11. Universal Wire and Cable Co. Ltd., Montreal, Que.

Table I sets out the estimated flow of copper through producing and consuming industries for the year 1969. The three important features of the flow are:

1. While there are many producers and many consumers there are only two refiners.
2. Only one firm, Noranda Mines Ltd., is represented at every stage of the copper flow.
3. Noranda Mines Ltd. is the only contract smelter and refiner.

Copper production and consumption data for Canada are shown in Table II. This table illustrates that there was rapid growth in production, refining and fabrication during the years 1955-66. Production continued to grow after 1966, while refining and fabrication have remained relatively constant. Exports of ore and matte and fabricated products have increased significantly since 1966. Exports of fabricated products, which represented some 11 per cent of Canadian fabricator sales in 1966, are expected to be 20 per cent of sales in 1970. Import of copper in any form has never been significant in Canada.

FLOW OF COPPER THROUGH PRODUCING AND CONSUMING INDUSTRIES • CANADA-1969 • (ESTIMATED)



LEGEND

- INCO—International Nickel Company
- HBMS—Hudson Bay Mining and Smelting
- EAST IND—Independent Mines East of the Rocky Mountains
- WEST IND—Independent Mines West of the Rocky Mountains
- NORANDA AFF—Mines Affiliated with Noranda Mines
- TEXAS GULF—Texas Gulf Sulphur Company
- FALCON—Falconbridge Nickel Mines
- GASPE—Owned by Noranda Mines

* Inco production low in 1969 due to four month strike

	1st						Estimated	
	1955	1962	1966	1967	1968	1969	1970	1970
<u>Thousands of Short Tons</u>								
Primary Copper Production	326	457	506	613	633	551	206	650
Refined Copper Production	288	383	434	500	524	450	175	520
Exports in Ore and Matte	41	89	95	129	162	158	n.a.	n.a.
Imports of Refined Copper	Nil	Nil	10	5	6	18	n.a.	n.a.
Domestic Consumption of Refined Copper by Fabricators	138	151	262	224	256	251	94	260
Exports of Fabricated Products (Copper Content)								
By: Brass Mills	n.a.	n.a.	19	23	31	30	11	32
Wire and Cable Plants	n.a.	n.a.	11	12	14	14	7	21
Total	n.a.	n.a.	30	35	45	44	18	53
Imports of Fabricated Products	n.a.	n.a.	13	8	8	14	n.a.	12
Domestic Consumption of Fabricated Products	n.a.	n.a.	245	197	219	221	n.a.	219
Exports of Scrap Less Imports (Copper Content)	n.a.	n.a.	36	20	23	43	n.a.	40
<u>Per Cent of Primary Copper Production</u>								
1. Refined Copper Production	88.3	83.8	85.8	81.6	82.8	81.7	80.0	80.0
2. Domestic Consumption of Refined Copper by Fabricators	42.3	33.0	51.8	36.5	40.4	45.5	40.0	40.0
3. Domestic Consumption of Fabricated Products	n.a.	n.a.	48.4	32.1	34.6	40.1	33.7	33.7
Note: Imports and exports of secondary brass products such as plumbing fixtures and manufactured products such as electric motors, generators and power transformers which contain significant amounts of copper have not been taken into account.								
N. A. Not Available								

Canada in the World Copper Market

Table III shows world production of copper based on the copper content of mine production and world consumption of copper including some secondary material. The United States, the world's largest producer and consumer, is a net importer of copper. The U.S.S.R. produces copper slightly in excess of its own needs. Japan, West Germany, the United Kingdom, France and Italy are the next largest consumers of copper in the world but are not significant producers. Canada is a major producer of copper but consumes some 40 per cent of primary output domestically.

The bulk of copper available in world trade originates from Zambia, Chile, The Republic of Congo, Peru and Canada. The principal markets for this copper are in Europe, Japan and the U.S.A. Canada's position in this trading balance is not sufficient to have any great influence on supply and demand conditions and hence over world prices for copper.

Copper Prices

Controversy has surrounded the price of copper from the time it became a major commodity in international trade. The history of the industry is a continuous story of producer cartels, consumer cartels, speculation and government intervention.

Copper is vulnerable to price instability. It is a vital war commodity; a significant part of world supply comes from under-developed countries with histories of political and economic unrest; production and shipment are particularly

(Thousands of Tons)

Production (By Countries of Origin of Ore)

	<u>1961</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>% of Total 1969</u>
United States	1,160	1,356	1,408	950	1,203	1,535	24.1
U.S.S.R.	524	710	770	850	905	940	14.7
Zambia	634	767	687	731	755	793	12.4
Chile	603	645	701	728	726	757	11.9
* Canada	439	510	508	603	632	551	8.6
Republic of Congo	325	318	349	353	358	362	5.7
Peru	218	199	194	212	223	221	3.5
Japan	106	118	123	130	132	133	2.1
All Other	653	817	949	919	999	1,083	17.0
World Total	<u>4,662</u>	<u>5,440</u>	<u>5,689</u>	<u>5,476</u>	<u>5,934</u>	<u>6,375</u>	<u>100.0</u>
<u>Consumption</u>							
United States	1,423	1,855	2,240	1,595	1,707	1,914	27.1
U.S.S.R.	579	720	720	745	775	810	11.5
Japan	352	471	532	679	766	888	12.6
West Germany	629	610	541	548	681	723	10.2
United Kingdom	583	717	653	567	994	603	8.5
France	269	317	321	299	323	369	5.2
Italy	218	190	205	213	214	259	3.7
Canada	142	225	263	220	250	240	3.4
All Other	859	1,136	995	1,074	754	1,267	17.8
World Total	<u>5,054</u>	<u>6,241</u>	<u>6,615</u>	<u>5,940</u>	<u>6,464</u>	<u>7,073</u>	<u>100.0</u>

*Canada normally accounts for over 10 per cent of world production but 1969 production was unusually low primarily due to the Inco strike.

Source: Year Book of the American Bureau of Metal Statistics

vulnerable to labor disputes; and demand is highly cyclical as much of it stems from the construction industry.

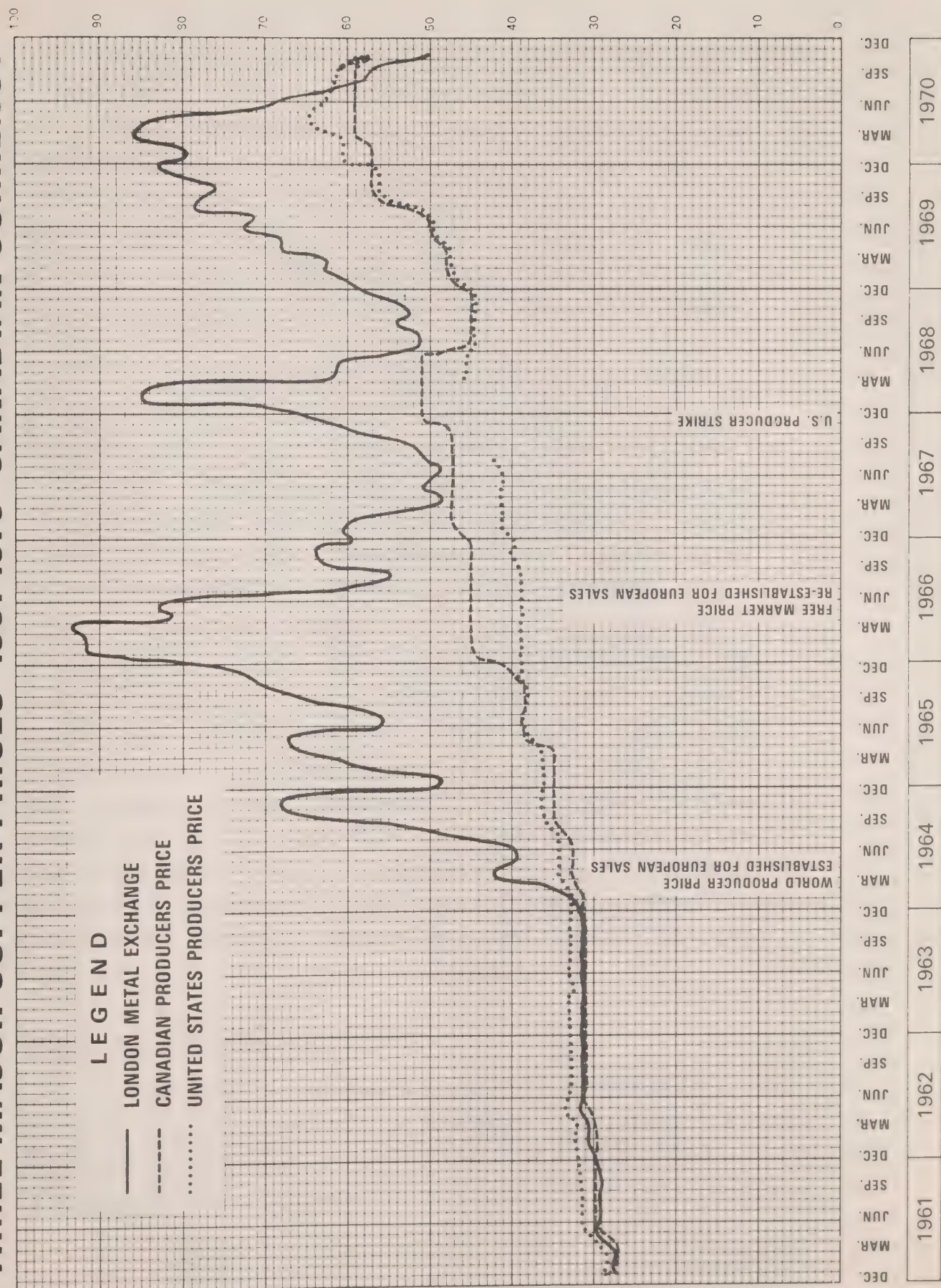
The closest thing to an international market for copper is the London Metal Exchange (L.M.E.). The exchange was originally developed to allow British fabricators to establish firm future prices for their copper products by covering any future changes in copper prices. Although the L.M.E. has usually been a marginal market with relatively small volumes of copper physically traded, the L.M.E. price has always been an important determinant of world copper prices.

Major producers have on occasion established their own copper prices. Most important to Canada are the Canadian producers' price and the United States producers' price. Copper producers place a high value on price stability and as a result "producer" prices lag considerably behind the L.M.E. price and fluctuate in a much narrower range. (Chart I)

From 1961 to 1963 copper prices were stabilized around 30 cents (Canadian) as major world producers utilized production controls and actively bought and sold on the L.M.E. This period of low and stable prices combined with a buoyant world economy led to increased copper consumption which in late 1963 initiated a sharp and prolonged rise in the L.M.E. price. Major producers outside the U.S.A. reacted by setting a world "producer" price at which most copper was sold in European markets until 1966. By early 1966 the L.M.E. price reached 90 cents and major suppliers other than the U.S.A. and Canada abandoned "producer" prices in favor of the L.M.E. price for all sales.

Chart 1

THREE MAJOR COPPER PRICES • 1961-1970 • CANADIAN CURRENCY



In the United States, concern about inflation and that country's growing commitment in South East Asia led to steps in late 1965 and early 1966 to stabilize United States' copper prices. The Canadian price which had generally been the same as the United States (adjusted for exchange and import duty) rose above the United States' price in 1966-67.

In July, 1967, a seven-month strike began in the United States' industry. United States' producers suspended their price and the Canadian price rose from 47 to 51 cents. The L.M.E. price which had declined during 1967 rose sharply again for a temporary period. The end of the strike brought a reduction of the Canadian price to the United States' producer price of 45 cents.

Contrary to expectations of North American producers, the L.M.E. price rose steadily from late 1968 until the spring of 1970. Canadian and United States' prices rose together but to a lesser extent. When this review was initiated in April, 1970, the Canadian price was 59 cents, six cents less than the equivalent United States' price. The appreciation of the Canadian dollar since June reduced this differential. In late October, 1970, following a reduction in the United States' producer price, the Canadian price was reduced to approximately the same level at 57.3 cents per pound (Canadian).

Canadian Government Involvement

Canadian producers receive L.M.E.-related prices for their export sales. An unfavorable differential between the domestic producer price and the L.M.E.-based export price is a significant disincentive to producers to sell copper

in Canada. It is essentially this conflict between producer-determined prices in North America and the unpredictable L.M.E. price determined by a marginal world market that has brought Government intervention in copper marketing.

Government intervention has occurred to ensure that domestic marketers of refined copper supply the normal copper requirements of domestic industries at a competitive price, generally taken to be the United States' producer price. Physical copper shortages have never occurred in Canada but there are shortages of copper offered for sale at the domestic price when the export price is higher. The export price has exceeded the domestic price since the end of 1963, except for short periods in 1967 and 1968, and domestic consumers have complained of copper shortages throughout this period.

In 1965, the Government surveyed consumers' requirements and asked Inco and Noranda to increase domestic sales to meet the indicated need. Problems persisted, however, and in late 1965 copper was brought under the authority of the Export and Import Permits Act making permits necessary to export copper in all forms. Early in 1966, the L.M.E. price was double the Canadian producers' price. Copper scrap prices followed the L.M.E. price making it difficult for Canadian consumers to purchase their normal scrap requirements and the Government stopped issuing export permits for all forms of copper scrap.

Increased demands in the domestic market required Noranda to market some contract-shipper copper in Canada rather than in higher-priced foreign markets. As contract-shipper copper was required in Canada, the Government announced in March, 1966, that export permits would be necessary for all exports of ores and concentrates. This ensured that any producer then shipping concentrate to a

domestic smelter could not switch to a foreign smelter. Thus, the contract shippers were locked into processing their concentrate through Noranda.

The L.M.E. price eased in the summer of 1966 and in September export controls on scrap were relaxed. Copper fabricators, however, remained concerned about the supply of copper available to them. In late 1966, following an assessment of their 1967 copper requirements, the Minister of Trade and Commerce directed producers to supply fabricators with their 1967 needs based on the assessment.

Business conditions were poor in 1967 and fabricators did not require their assessed needs. Producers found they had set aside copper for the domestic market which was not needed and had to sell about 30,000 tons in a declining world market.

By the summer of 1967 the L.M.E. price was close to the Canadian price and Government intervention was nominal. Both the Government and the industry expected that the two prices would remain at about the same level. The United States' strike upset this expectation. Producers and Government agreed that during the strike producers would meet requirements of domestic consumers at the producer price. These arrangements persisted until late in 1968.

A combination of separate events over the years 1965-68 culminated at the end of 1968 in a major change in the Canadian copper situation. These included:

- .Government action in March, 1966, requiring mines shipping to domestic smelters to continue to do so.
- .Abandonment of the world producers' price and the advent of L.M.E.-based prices as the major international trading price for copper starting late in 1966.

.A disincentive to sell copper in the United States at the producer price when it was re-established in 1968 following the strike.

.The inability of Noranda to supply the increasing copper requirement of its own fabricating subsidiaries from its own copper production.

These events led Noranda to change its policy regarding contract shippers' copper over which it has marketing control. This policy had been to sell roughly 20 per cent of the contract shippers' copper in Canada and 40 per cent in the United States at the respective producer prices, with the remaining 40 per cent sold off-shore at prevailing world prices. As a result, contract shippers received lower revenues than would have occurred if more of their production were sold at world prices.

The contract shippers had two objections to the existing arrangements. First, they felt that Noranda was exporting too much of their copper at the United States' producer price. Second, they were concerned because Noranda was purchasing some of their copper at the Canadian producer price to supply a portion of the copper requirements of its own fabricating plants. Noranda felt that to overcome these objections it had to sell more of their copper at higher prices.

In December, 1968, Noranda asked each of the contract shippers to elect what portion of their copper they wanted sold at the North American producer price and at L.M.E.-based prices in 1969 and 1970. Most elected to have all or a high proportion of their copper sold at L.M.E.-based prices. This meant that Canadian copper would be sold in the United States at the prevailing L.M.E. price and also that less copper would be available in the domestic market at the producer price. This would have resulted in a

"two-price" system in the domestic market with consumers obtaining contract-shipper copper paying a higher price than consumers obtaining producer-price copper from Noranda, Inco, Texas Gulf or Hudson Bay.

The Government met the contract shippers in January, 1969, and advised them that the legitimate needs of Canadian consumers should be met at the producer price and that a two-price system for copper in the domestic market was unacceptable. Agreement was reached in February with all producers supplying the domestic market that 23 per cent of the contract shippers' copper, 100 per cent of Noranda's own copper, 66 per cent of Inco's copper, 55 per cent of Texas Gulf's copper and 33 per cent of Hudson Bay's copper would be sold domestically at the producer price. Copper shortages did occur in late 1969 due to labor disputes at Inco's Sudbury operations and at Noranda's Geco Mine. The Government regarded these shortages as an industry problem and did not intervene to correct them.

In an effort to make the 1970 copper supply situation more orderly, the Government undertook to assess the needs of copper consumers and to advise the producers of the domestic supply requirement. To avoid the problems experienced in 1967, one-twelfth of the estimated 1970 requirements was taken as the January supply, and preliminary estimates of February and March requirements were made. Consumers' needs were to be reassessed monthly and producers advised so that a flexible forecast of copper requirements would be developed on a moving-quarter basis. The start of this procedure was delayed due to the Inco and Geco strikes and producers were not advised of requirements for January, 1970, until Dec. 18, 1969.

January requirements were set at 26,500 tons of copper based on estimated 1970 requirements of 318,000 tons. This represented an increase of some 20 per cent over 1969 domestic requirements. To cover the increase, Hudson Bay and the contract shippers to Noranda who were

selling 33 per cent and 23 per cent respectively of their output domestically in 1969, were each asked to supply 50 per cent of their output. Texas Gulf and Inco, who were already supplying more than 50 per cent of their output domestically, were not asked to supply more. Noranda continued to supply 100 per cent of its output domestically.

This was more copper than producers, particularly the contract shippers, were willing to supply at the producer price. The L.M.E. price at that time was just over 80 cents per pound, compared with the Canadian price of 57 cents. On the basis of a spread of about 25 cents per pound, Noranda estimated that contract shippers faced a potential revenue loss of \$22,000,000 in 1970 by increasing their copper supply to the domestic market. To offset this potential revenue loss it was estimated that the contract shippers would have to receive a price of some 70 cents per pound for copper sold in Canada during 1970.

The United States, as a net importer of copper, has a "blended" average cost for copper which is a weighted average of domestic copper purchased at the United States-producer price and imported copper purchased at world prices. In late December, 1969, the "blended" price was 66 cents (Canadian) per pound. Noranda apparently did not feel a 70-cent producer price in Canada was tenable at a time when the United States' "blended" price was 66 cents. Consequently Noranda increased its domestic copper price from 57 cents per pound to 66 cents effective Jan. 2, 1970. Texas Gulf, Inco and Hudson Bay announced similar price increases.

This led to the Government action requesting that the price increase be suspended until March 1, 1970, while the Prices and Incomes Commission held the National Conference on Price Stability. Accordingly, the price returned to 57 cents on Jan. 12, 1970, and no billings were ever made at the 66-cent price.

The Government concluded that the proposed 66-cent price would be ~~damaging~~ to price restraint in Canada. At the same time, it was felt that a lower price under the proposed 1970 supply arrangements would place severe strains on some producers. Meetings were held between the Government and industry in late February, 1970. The outcome of these meetings, announced in the House of Commons by the Minister of Industry, Trade and Commerce on Feb. 27, was as follows:

"...as of March 1, the supply of copper into the domestic market will be assured at a level of 23,500 tons per month at a price of 59 cents per pound."

"...our export of copper scrap will be limited to the level of exports during the last six months of 1969."

"In order to provide for a more equitable distribution between producers of the supply requirement of 23,500 tons per month, all mines in Eastern Canada will now be required to make an appropriate contribution to this supply."

Supply of 23,500 tons per month is based on the average supply during the first six months of 1969. The effects of requiring all producers in Eastern Canada to supply copper to the domestic market was to reduce the portion of contract shippers' output sold in Canada from 23 per cent in 1969 to 17 per cent in 1970.

Domestic requirements for refined copper have altered sharply during 1970. The 23,500-ton-per-month domestic supply quota was less than required early in the year but now is in excess of actual needs. Consequently, eastern concentrate exporters have not been required to supply the full amount of copper they were asked for in February.

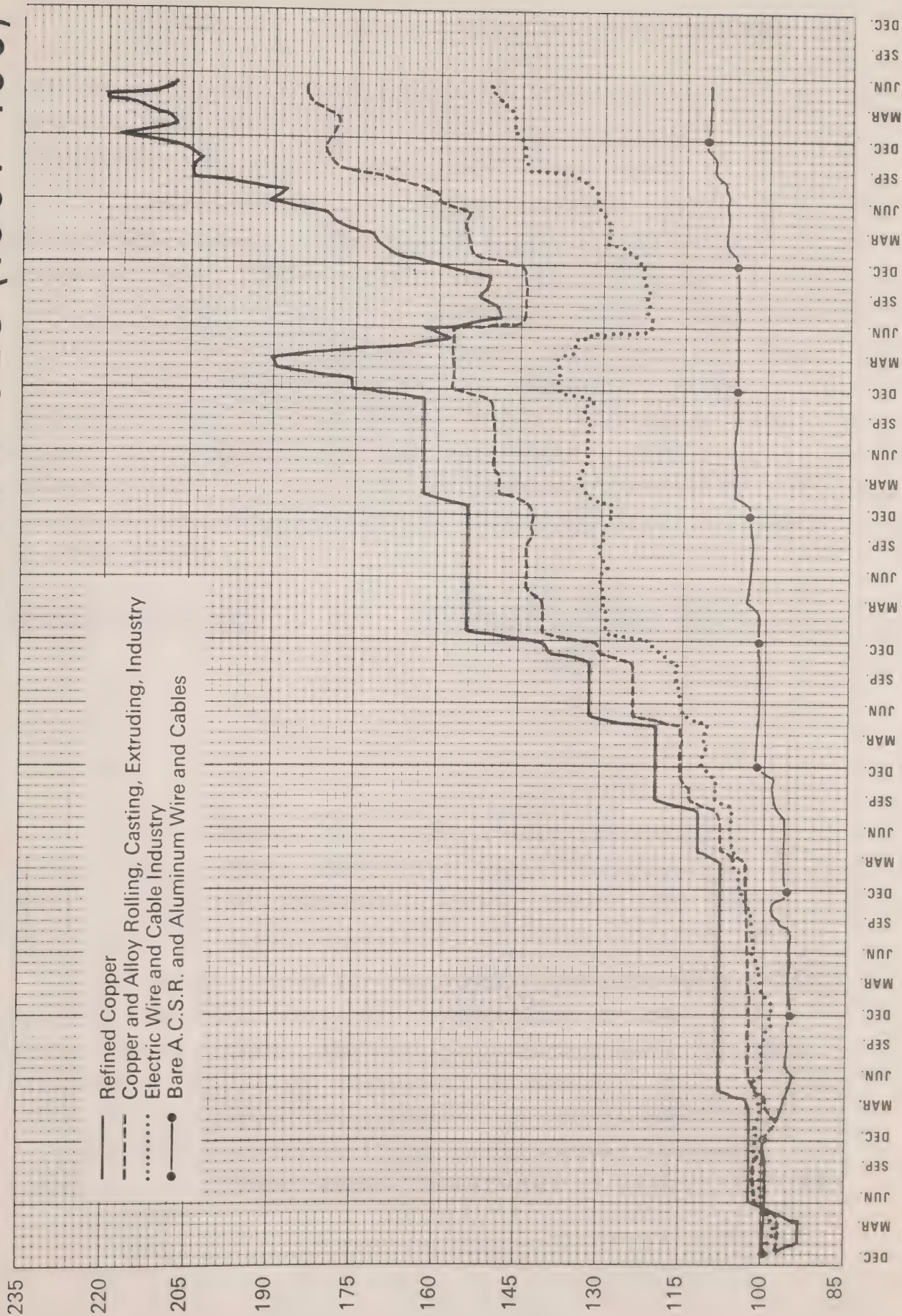
IMPACT OF DOMESTIC PRICE AND
SUPPLY ARRANGEMENTS FOR
COPPER

A domestic price for copper which is below export market prices and the supply arrangements such a price requires have varying impacts on different sectors of the copper-producing and -consuming industries, and on the economy as a whole. Since the domestic price for refined copper was held at a low level in 1970 to assist the domestic price restraint program, this is the first issue considered. A review of the impact of domestic price and supply arrangements on producers, smelters and refiners, scrap dealers, fabricators and manufacturers is followed by some remarks on the substitution of other metals for copper.

Impact on Domestic Price Restraint Program

Changes in the price of refined copper are as a rule directly reflected in the prices of fabricated copper products. Chart II shows Industry Selling Price Indices for refined copper, together with two indices for products of brass mills and wire and cable plants. The close relationship between refined copper prices and selling prices of fabricated copper products is apparent. In simple terms, the fabricating industry purchasing 23,500 tons of copper per month at 59 cents per pound rather than 66 cents per pound has been saved \$3,290,000 per month in copper costs which it would otherwise attempt to recover through price increases. Allowing for exports of fabricated copper products and the fact that some products are sold under fixed-price contracts, it is not unreasonable to state that Canadian purchasers of fabricated copper products

INDUSTRY SELLING PRICE INDICES (1961=100)



SOURCE: DOMINION BUREAU OF STATISTICS

were saved some \$2,500,000 monthly in the first six months of 1970 by Government action taken to prevent increases in the domestic price of refined copper.

The Commission investigated costs and prices of selected manufactured items having a high copper content. These included: Refrigeration, air conditioning and heating equipment; electrical apparatus such as transformers, motors and switchgear; automotive parts such as radiators and electrical wiring; and plumbing components. Copper accounts for from five to 80 per cent of the manufacturing cost of the products examined. An increase in the price of refined copper of 16 per cent as planned this year would have increased manufacturing costs of high-copper-content products as shown below.

<u>Copper as Per Cent Manufacturing Cost</u>	<u>% Cost Increase From 16% Increase in Copper Cost</u>
5	.8%
20	3.2
40	6.3
60	9.5
80	12.6

For example, for a distribution transformer in which copper averages some 20 per cent of manufacturing cost, a 16-per-cent increase in copper prices would lead to an increase in manufacturing costs of some 3.2 per cent.

Unlike prices for fabricated products, manufactured products made from fabricated products are not subject to price changes whenever the price of refined copper changes. For example, firm-price contracts are common in the electrical industry. More importantly, market conditions for a particular product will determine whether its price increases. For these reasons, manufacturers of many products

reviewed have been unable to increase prices in line with cost increases for copper in 1969 and 1970. Manufacturers state, however, that profit margins can be allowed to erode only temporarily and that they will seek to recover these cost increases as soon as circumstances permit.

It is possible to state how changes in the price of a basic commodity such as steel, copper or lumber will affect costs of products in which they are a major input. It is not possible to state how prices of the products will respond to such cost changes. To the extent, however, that these cost changes can be avoided, there is a far greater possibility of enjoying reasonable price stability. The fact that cost increases resulting from a price increase in one basic commodity have been modified appreciably is a positive contribution to the general price restraint program.

Impact on Producers

Domestic price and supply arrangements for refined copper have had a direct financial impact on producers. Continuation of these arrangements when the domestic price is below the export price for an extended period could affect producers' policies for processing and marketing copper. When 23,500 tons of copper per month is marketed in Canada, monthly revenue of Canadian producers is reduced by \$470,000 for every cent per pound by which the Canadian domestic price is below the available export price.

Low profits attributable to the domestic copper price are generally not considered an issue by most producers. Even at 59 cents per pound the copper price was high by historical standards and most operating mines would continue to operate profitably at a lower price. Producers do argue, however, that if they were able to sell all their output at the highest available price, some of the increased revenue would be devoted to exploration and development leading to a faster expansion of copper production.

The reaction of individual producers to domestic price and supply arrangements varies according to their position in the industry. Large producers such as Inco and Noranda with historic ties in the domestic market take a long-term view of copper marketing. A price which is consistent with reasonable long-term profits and free of short-term fluctuation is considered an investment in long-run sales stability. This is particularly the case with Noranda which must consider its large investment in fabricating plants.

Small producers, of which many are contract shippers to Noranda, have different objectives. Many of their mines are short-run prospects on which they want to recover costs as quickly as possible and make sufficient profit to develop another property. Other mines are very old and becoming marginal. Their owners are not developing new properties but simply want to prolong the life of existing mines. The main interest of these producers is to maximize current profit by selling copper at the highest price possible.

Texas Gulf and Hudson Bay as relatively new marketers of copper in Canada tend to fall between these positions. They do not have historical ties to major Canadian consumers but are interested in marketing some copper domestically. If, however, the domestic price equaled the world price they would have difficulty developing major Canadian outlets for their copper due to the established position of Noranda and Inco in the market. Thus they are reluctant to increase their sales in Canada under marketing conditions they regard as unfavorable.

The potential effect of a domestic copper price generally lower than the available export price is to shorten the life of those mines required to sell copper in the domestic market. In terms of mining development, present domestic pricing arrangements have little effect as copper properties continue to be developed on the expectation of a long-term average price lower than 59 cents per pound. For some existing mines, however, arrangements which increase the share of their output sold in the domestic market at a lower price than the available export price could jeopardize the mines' future.

The major complaint of producers currently supplying copper to the domestic market is the lack of equity in present arrangements. Generally only those producers whose copper is smelted and refined in Canada are required to sell copper domestically, although not in equal proportions of their output. Those producers whose copper is exported as concentrate have not supplied copper to the domestic market. These producers are able to sell all their output at world prices giving them greater profit potential and hence greater ability to explore and develop new properties.

Some producers regard the impact of domestic price and supply arrangements on their ability to export copper as more serious than any current loss in earnings. Refined copper is sold in export markets under contracts of one year or longer. Smelter contracts for concentrates may range from one or two years up to the life of the mine. Noranda, for example, had contracted for the sale of contract-shipper copper in Europe at L.M.E.-related prices during 1970. Hudson Bay had also contracted its available copper on a similar basis. The government action increasing the amount of copper to be supplied by these two companies in Canada during 1970 imperiled these sales contracts. The subsequent limitation of domestic requirements to 23,500 tons per month during 1970 allowed export contracts to be maintained, thus benefiting these shippers.

Eastern exporters who had been exporting all their output were placed in a similar position when asked to supply copper to the domestic market in February, 1970. Only one of these companies did, in fact, supply copper to the domestic market. It did so by buying copper on the open market and importing it to Canada rather than interrupt its own marketing arrangements.

The abrogation of sales contracts is unfavorably regarded by European consumers and makes future contracts difficult to obtain, particularly in times of weak demand.

Impact on Smelters and Refiners

The effect of arrangements which require producers who smelt and refine their copper in Canada to supply most of the domestic market is to create a disincentive to have copper concentrate smelted and refined in Canada. Higher revenues can be obtained by exporting concentrate when the export price is greater than the domestic price for copper. In the absence of price differentials many mines prefer to have their copper processed in Canada as it is cheaper

to ship refined copper than concentrate. Canadian smelters and refiners, however, cannot successfully compete against foreign processors for the output of these mines when the mines are faced with the possibility of lower revenues by processing their concentrate in Canada. The future development of smelting and refining facilities in Canada is thus jeopardized by present copper marketing arrangements.

Impact on Scrap Dealers

At times when refined copper prices in Canada are below world prices, exports of scrap tend to increase. This price differential in itself does not, generally, benefit the scrap merchant as the scrap market is highly competitive, margins are narrow and profits are based on volume. To the extent, however, that merchants can successfully speculate on changes in the size of the differential they are able to profit.

Scrap merchants have an established position in export markets where there are numerous buyers as opposed to the existence of only one large scrap purchaser in Canada. They are opposed to export limitations which could seriously disrupt normal trade patterns. From March 1 until Sept. 1, 1970, there was an export quota of 4,000 tons monthly.

Copper fabricators are required to return new scrap generated to refineries for reprocessing on a toll basis. These restrictions have lessened requirements for new refined copper and have not impaired the scrap market.

Impact on Fabricators

The copper fabricating industry has generally benefited from price and supply arrangements for its copper requirements. A domestic producers' price which is lower than other copper prices gives fabricators an advantage in both export and domestic markets.

The absolute price paid for copper is not of great short-term importance to the fabricator; rather, the important factor is the price a fabricator pays for copper in relation to his competition. For most of the last decade the producers' price for copper in Canada has been equivalent or related to the producers' price for copper in the United States. Canadian fabricators, therefore, have generally been able to compete in the United States' market on product lines where their converting costs are comparable to those of United States' fabricators.

As a general rule, prices of fabricated copper products in the domestic market are determined by adding a converting charge which includes costs of other materials, labor, overhead and profit to a base copper price. A domestic copper price lower than the United States and L.M.E. copper prices, combined with import duties, affords domestic fabricators considerable protection. In these circumstances domestic fabricators may be able to maintain converting charges at higher levels than would otherwise prevail. Such a pricing relationship would also, in the long run, enable Canadian fabricators to compete in export markets on product lines where their converting costs are not normally competitive. In general a domestic copper price lower than other copper prices would reduce the incentive for Canadian fabricators to be as efficient as possible, and could be detrimental to the development of a low-cost fabricating industry in Canada.

Data assembled by the Commission indicate that, while there is considerable variation among firms, the fabricating industry has a good profit record in relation to other industries over the last five years, averaging a 12-per-cent after-tax return on equity. Comparisons of plant utilization and productivity performance for the industry, however, are less favorable.

Average capital expenditures of some \$27,000,000 annually in the last five years are high when viewed against the capacity that appears to exist. Forecasts provided the Commission indicate that the amount will average less than \$20,000,000 annually in the next five years. Excess capacity in the industry is attributed to the small size of the Canadian market in relation to the minimum-efficient size of some production machinery and to the need felt by individual fabricators to produce a broad product line. As overhead costs are significant, fabricators are encouraged to expand export sales when the domestic copper price is below world prices in order to utilize this capacity. This factor appears to account for some of the erratic swings in domestic demand for refined copper.

There have been cases in recent years of some fabricators exporting products with a minimal value added simply to take advantage of a favorable copper price. Such cases have been reduced by the export permit system but in no event can they be considered desirable.

Although fabricators were assured of all their copper requirements from domestic suppliers at the domestic price until 1970, shortages have occurred from time to time. Large differentials between the domestic price and available export prices, contractual sales by producers in export

markets, the inability of fabricators to forecast needs adequately, and the procedures by which fabricators purchase copper, have combined to produce these shortages. A supply quota has been used for the first time in 1970 whereby fabricators are assured of 23,500 tons monthly of domestic-priced copper which equals their average monthly consumption during the first six months of 1969. Some fabricators have experienced shortages of copper under this system while others have required less than their quota.

Fabricators short of domestic-priced copper can always purchase copper on the open market or can curtail operations. Both alternatives have been tried by different Canadian fabricators but neither can be considered desirable. If copper is purchased on the open market a "two-price" system develops in the industry where the average copper cost varies by fabricator. This is the prevailing situation in the United States. A recent investigation of the copper industry in the United States was very critical of the inequities and economic inefficiencies which exist between fabricators as the result of a disproportionate supply of producer-priced copper:

"Firms whose allocations of producer copper are disproportionately low are placed at a serious competitive disadvantage. Where the copper content represents a fairly large proportion of the value of a product, even a very efficient fabricator who has to obtain all or the great bulk of his metal on the open market may not be able to absorb this difference in his raw materials costs without losses. Over several years this situation has led to the shutting down of some plants and reductions in the net worth of some companies that did not have access to the cheaper metal. It has also restricted the entry of new concerns because of their inability to obtain producer allocations.

*Report of the Sub-Committee on Copper to the Cabinet Committee on Economic Policy. pp. 15-16

On the other side, firms obtaining large allocations enjoy a broader spread between raw materials cost and product price. They can, therefore, make larger profits even at lower levels of efficiency.

The possibility that firms with very low efficiency or very low operating rates can survive by receiving cheap copper points up the other deficiency in the two-price system -- resources such as labor and capital may not be allocated to their most efficient employment. An efficient firm, which could make better use of labor, capital and raw materials, may find itself reducing the level of operations, laying off workers and holding back new investment. An inefficient firm that had a substantial allocation could well be operating at higher levels of capacity. Mineral resources are thus flowing not necessarily to those who can use them most effectively, but to those favored by a raw material supplier.

As with most economic inefficiencies brought about by imperfect markets it is impossible to estimate the precise costs imposed on the economic system ... the potential for anti-competitive behavior and for deviations from free market efficiency are obviously great. Under the two-price system it is simply too easy for a producer to bias his allocations of low-priced copper toward firms that do not compete with its fabricating subsidiary and away from those that do. It is also very unlikely that the pattern of allocations, whatever the design of the producers, would work out to be the same as that obtaining in an open and competitive market."

Firms choosing to curtail the size of their output to match the supply of producer-priced copper may operate at inefficient levels and thus incur higher costs. Such behavior could reduce the supply of fabricated products sold domestically thus putting upward pressure on prices and would lessen competition among domestic fabricators.

Impact on Manufacturers

For purposes of this study, a manufacturer is any firm using copper other than wire and cable and brass mills. Manufacturers fall into two basic categories:

Those who buy wire and cable or brass mill products for a component of goods which they manufacture, and those who buy copper alloys from scrap merchants or ingot makers.

Manufacturers in the first category are significantly affected when there is an increase in the domestic producer price of copper. The increase is immediately passed on to the manufacturer from the fabricator but offsetting revenues through increased selling prices are by no means automatic. Manufacturers also assume risk in quoting firm future prices when they are unable to obtain firm future costs of fabricated copper products.

Prices for fabricated copper products in Canada which were maintained below prices for similar products elsewhere could provide users of such products with a significant cost advantage in international trade. Thus, manufacturers prefer the maintenance of a low domestic copper price. There can, however, be no justification in the long run for supporting what may be inefficient manufacturing operations with low-priced fabricated copper products.

Manufacturers in the second category are not directly affected by a change in the domestic producer price of copper. The copper alloys which they use are mainly purchased directly or indirectly from scrap merchants at world market prices.

Substitution

One of the arguments ~~used by producers~~ for the maintenance of a producer price is the threat of other materials being used in place of copper when the price of copper rises. Substitution has been a factor in the slow growth in domestic consumption of copper over recent years.

Chart II shows the Industry Selling Price Index for the total electric wire and cable industry compared with the index for bare aluminum conductor steel reinforced and aluminum wire and cable. A major reason that the relationship between wire and cable prices and refined copper prices has weakened in recent years is the increasing use of aluminum which is characterized by stable prices and regular supply. Even at the current domestic copper price of 59 cents per pound there is a strong financial incentive for users of wire and cable to purchase aluminum rather than copper products.

Brass mills have experienced slower growth than might have occurred at lower copper prices. Copper tube is being displaced in many uses by plastic materials.

Manufacturers report increased attempts to find substitutes for copper. Electrical apparatus is being built using aluminum wire and foils, experimental auto radiators have been built from aluminum and work is being done on the use of printed circuits in automobiles to replace copper wire. Evidence presented to the Commission suggests that as long as the price of copper remains at high levels there will be continuing efforts by Canadian industry to substitute other materials. Several of the large copper fabricators are actively promoting the use of aluminum rather than copper. This effort is likely due in part to the uncertainty of their copper supply as well as to high copper prices.

Copper's two important qualities that limit substitution are its durability and workability. Copper in most uses will last for a longer period of time than substitute materials. Labor costs in many manufacturing and construction endeavors are cheaper using copper than substitute materials.

PROBLEMS OF A TIERED-PRICE SYSTEM FOR COPPER

Two factors have largely determined existing arrangements for the price and supply of copper in the Canadian market: First, the support of major producers for a North American producers' price for copper, and second, Government intervention requiring those producers refining copper in Canada to supply the copper requirements of domestic-consuming industries at the producer price.

There are two main benefits of these arrangements. First, the price of refined copper in Canada has not fluctuated to the same extent as international prices and this has made a significant contribution to domestic price restraint, particularly in 1970. Second, the more stable domestic copper prices have enabled Canadian copper-consuming industries to compete more effectively in the North American market.

These arrangements have, however, given rise to the following problems which were discussed in the previous chapter:

- . Financial inequities are created among mines.
- . A disincentive to process concentrate and build new processing facilities in Canada is created.
- . Producers selling copper in both domestic and export markets are unable to make orderly marketing plans due to the uncertainty of domestic supply requirements.
- . All fabricators do not have access to their total copper requirements at the domestic price. Supply tends to be allocated on the basis of historical consumption patterns which may not necessarily reflect current requirements. New fabricators experience problems arranging an adequate copper supply.

- . A domestic price for copper which is lower than the U.S. producers' or the international price makes it possible for both fabricators and manufacturers to expand their sales and profits by selling in markets in which they may not normally be competitive.
- . When domestic copper prices are below international price levels, scrap exports tend to increase, reducing the amount available for reprocessing and sale in Canada. This places a greater burden on producers to supply the domestic market.

Two basic conditions would have to be met before the above problems could be eliminated. All copper produced in Canada would have to be sold at the highest price available in world markets, and domestic consumers would have to be able to purchase all the copper they required at that price. Copper consumers in other countries would have to pay a similar price. These two conditions could only fully be met by the existence of one world price for copper.

The establishment of a viable world price for copper would likely require some form of international co-operation to support the necessary market mechanism. This occurred to some extent during the years 1961-63. Although such an informal arrangement could take place again it appears unlikely that any formal pricing arrangement which would prove workable over time will emerge in the near future.

The L.M.E. price is the closest to being a world price and its adoption would eliminate most current problems from the producers' point of view. This price cannot however be considered a representative world price. Although substantial copper is sold at L.M.E.-related prices, a relatively small amount is actually sold through

the L.M.E. to determine the price. The price is thus highly sensitive to supply and demand fluctuations and to hedging operations of buyers. A well-developed commodity market features large volume trading and an active futures trade of up to 12 months. The L.M.E. lacks these characteristics.

North American producers have traditionally been reluctant to use the L.M.E. price. Its use in Canada, with the maintenance of a different price in the U.S., would seriously affect the competitive position of Canadian fabricators and manufacturers whenever the L.M.E. price rose above the U.S. producers' price.

In the absence of a universally accepted world price, domestic producers and consumers are faced with the likely continuation of a tiered-price system for copper and the problems summarized above. The issues involved in a tiered-price system are discussed below.

Domestic Copper Price

Apart from the L.M.E. price, three principal methods exist for the pricing of refined copper in the domestic market:

1. United States' Producer Price: The United States producers' price appears to represent the price base for copper against which Canadian fabricators and manufacturers must compete in the North American Market. Problems with this price are that it tends to change suddenly and sharply, though lagging considerably behind L.M.E. prices. The fact that there has recently been considerable criticism of copper pricing methods in the United States casts doubt on future pricing policy in that country.

2. U.S. "Blended" Price: Some producers believe that the United States' "blended" copper price should be the minimum price at which copper should be sold in Canada. They state that it is the price base for all fabricated products in that country. It appears, however, that those U.S. fabricators fully supplied with copper at the producers' price often set their product prices accordingly, limiting the validity of the argument. More importantly, the "blended price" is not really a price but an estimated average cost of copper currently consumed in the United States.
3. Canadian Producer Price: A unique Canadian producers' price might be maintained for a time. To be viable it would have to be related to the prevailing United States and L.M.E. prices.

From the Canadian viewpoint each of these alternatives has numerous limitations. Regardless of the pricing method used, serious problems result for some sector of the copper industry.

Domestic Copper Supply

The existence of a tiered-pricing system for copper deters producers from adequately supplying the domestic market each time the export price exceeds the domestic price. This situation makes necessary arrangements for the allocation of copper to domestic consumers.

Three possible allocation arrangements exist: First, a historically determined supply quota could be used, as at present. Second, there could be a quota providing fabricators with only sufficient domestic-price copper to cover their domestic sales. Third, they could be fully supplied with copper at the domestic price.

The major problem with historically determined supply quotas is that firms do not have free access to copper in line with their competitive ability and growth potential. For example, a new fabricator, no matter what his potential efficiency, is placed at a serious disadvantage if he has to pay a higher price for the bulk of his copper needs. Such a quota system is, however, simple for producers to adapt to and would not interfere with their export marketing arrangements.

Providing fabricators with only sufficient copper for their domestic sales would eliminate any possible producer subsidization of export sales and would stabilize the quantity of copper required by fabricators but other problems are presented. Such an allocation system could discourage export sales altogether, resulting in a higher cost domestic industry than might otherwise be the case. Such a system could make the competitive standard in the industry the relative ability of individual fabricators to acquire copper from producers at the lowest price for export sales. Fabricators would, therefore, have to be given some assurances of equal access to copper for export sales at a common price. Even if such assurances were given, difficulties remain. If the price for this copper is above the prevailing United States' price, Canadian fabricators may not be able to compete in the

United States' market. Problems exist in measuring export as opposed to domestic sales, largely due to third-party involvement. Also, the advantage of a low domestic copper price is not great on high-value-added fabricated products. It would be incongruous to supply copper for low-value-added fabricated products which were converted into manufactured goods for export which also had a low value added but not to supply domestic-priced copper for export of a higher-value-added fabricated product.

Supplying fully fabricators' copper requirements at the domestic price would overcome many of the above problems and avoid the emergence of a two-price system for copper in the domestic market. Under this alternative, however, there exists a potentially significant financial burden on producers, and difficulties in marketing copper domestically.

Domestic Copper Marketing

As stated earlier, a number of copper concentrate producers now export their entire concentrate output at L.M.E.-related prices, while those processing their copper concentrate in Canada supply varying portions of their refined copper output to the domestic market at the domestic price. Domestic fabricators require refined copper, the only domestic source of which is those producers processing their copper in Canada.

Copper in concentrate or refined form is generally exported under contract of one year or more. Refined copper sold domestically is not generally sold under contract.

Any supply allocation system resulting from a tiered-price system is thus complicated by two marketing problems. First, who is to supply the copper, and second, under what terms is the copper to be supplied?

Those producers now supplying the domestic market argue that present arrangements are inequitable, imposing a significant financial burden on them at times when the domestic price is below the export price. This equity problem could be overcome in two ways. First, all producers could be required to process some or all of their concentrate in Canada. This is not feasible in the short run as adequate processing capacity does not exist and it is not clear that even in the long run there would be significant benefits in this approach. Second, there could be some form of revenue equalization among producers which involved a transfer of revenues from those producers selling in higher-price markets to those selling in lower-price markets. Many producers not now supplying copper to the domestic market, however, argue that the corporate structure, geographic development and marketing history of the industry should lead to some producers being totally exempted from sharing in supplying copper to the domestic market. With a tiered-pricing system there is no way of avoiding occasions when some or all producers will be worse off than they might be if they were freely exporting.

Any arrangement which requires producers to supply a portion of their output to the domestic market is made more complex by the absence of sales contracts in Canada. A tiered-pricing system could probably operate more effectively where the quantities to be marketed domestically were firmly established.

The Present Situation

The L.M.E. price fell to some 50 cents per pound in mid-October, 1970. The U.S. producer price was subsequently dropped to 56 cents (U.S.) and the Canadian producer price decreased from 59 cents (Canadian) to 57.3 cents, equivalent to the U.S. price adjusted for exchange. This drop in price has been accompanied by a decline in demand for refined copper in both domestic and world markets. On Sept. 1, 1970, quantitative export controls on refined copper and copper scrap were removed by the Canadian Government, although copper remains on the export control list. Problems associated with a tiered-pricing system were thus minimized for the present.

Attempts at forecasting developments in world copper markets have not often proven to be accurate. Present indications are, however, that world production capacity will increase faster than demand until the mid-1970s. The history of the world copper industry suggests that production capacity is often not reached for reasons such as strikes and shipping problems. Copper demand also tends to fluctuate in response to general economic conditions and inventory activity of buyers in response to actual or expected supply interruptions. It is possible therefore, that periods of significant differentials between available export prices and domestic copper prices could re-emerge.

Both the copper industry and the Government appear to recognize the desirability of considering ways to eliminate some of the problems outlined in this report. The Commission is participating in efforts to explore the various alternatives which might be considered in developing a reasonable approach to the future of copper price and supply in Canada.

CHAPTER II

1970 PRICING ACTIONS OF WIRE AND CABLE PLANTS AND BRASS MILLS

On March 1 Canadian copper fabricators increased their prices in response to the two-cent-a-pound increase in the price of refined copper. The objective of this section of the study is to determine whether those price increases met the Commission's pricing criteria.

The pricing criteria are designed to be applied to individual firms. Detailed information has been obtained from each of the major producers of wire and cable products and brass mill products and the pricing policies of each company have been reviewed in the light of the criteria. Information was obtained on costs, prices, profits and other related matters. Much of the information compiled for this study is confidential since it relates to costs and revenues of individual fabricators.

Sales

Sales of copper-based wire and cable products in 1969 were about \$340,000,000. The five companies formally examined in this review, Canada Wire and Cable Co. Ltd., Northern Electric Co. Ltd., Phillips Cables Ltd., Pirelli Cables Ltd. and Canadian General Electric Co. Ltd., account for about 95 per cent of industry output. Discussions were also held with six small firms accounting for most of the remaining output.

Sales of brass mill products in 1969 were about \$200,000,000. The four companies examined in this review, Anaconda American Brass Ltd., Noranda Metal Industries Ltd., Ratcliffs (Canada) Ltd. and Wolverine Tube Division, Calumet & Hecla (Canadian) Ltd., represent virtually 100 per cent of the industry output.

Pricing

As a general rule, pricing of both brass mill and wire and cable plant products is computed by using the Canadian producer price of copper as a base price to which a converting charge which includes costs of other materials, labor, overhead and profit is added. Changes in the producer price of copper during the last 18 months are shown below.

<u>Date</u>	<u>Price per Pound</u>
Prior to Jan. 10, 1969	\$0.45
Jan. 10, 1969	\$0.48
May 12, 1969	\$0.50
Aug. 7, 1969	\$0.53
Sept. 9, 1969	\$0.57
March 1, 1970	\$0.59
Oct. 22, 1970	\$0.573

When the price of refined copper changes, prices of all wire and cable and brass mill products in which copper is a component tend to increase by a like amount directly related to the copper content of a product line. From January, 1969, to March, 1970, therefore, the base price of fabricated copper products generally rose 14 cents per pound of copper content.

At times changes are made in converting charges resulting in price changes on some product lines which may be more or less than the change in the price of copper. Changing market conditions are often reflected by discounts or surcharges on list prices. A large proportion of sales are made on a bid or contract basis. Prices determined in this way tend to relate to available plant capacity as well as to direct cost factors.

Products and Value Added

There are four main categories of wire and cable products:

- a) Overhead and underground electric power transmission and distribution cable;
- b) Telephone and communications cable;
- c) Tonnage items such as bare copper and magnet wire;
- d) Construction and consumer-durable products.

Copper constitutes 95 to 100 per cent of the material content of wire products and 60 to 75 per cent of cable products. Other materials used include paper, steel, plastics and rubber.

The value added to a pound of copper in labor, materials other than copper, overhead and profit in a wire and cable plant averages approximately 70 cents. Direct manufacturing costs are a very small component of total cost.

There are three main categories of brass mill products:

- a) Rods, bars and shapes;
- b) Tubes and pipes;
- c) Plate, sheet and strip.

Copper represents 85 to 95 per cent of the metal content of brass mill products. The balance is made up largely of zinc and includes lead, tin, nickel and aluminum.

The value added in labor, overhead and profit to a pound of copper or copper alloy in a brass mill averages approximately 30 cents.

Compliance with Price Criteria

The detailed study completed by the Commission of costs, prices and revenues of wire and cable plants for the period 1966 to 1970 inclusive reveals the following:

- .Price increases made in March, 1970, result from the producer price increase of two cents per pound on March 1, 1970;
- .The increases announced for wire and cable are less than increased costs resulting from higher copper prices;
- .Although there have been increases in the costs of other materials and labor, they have not been reflected in higher converting charges and are being absorbed by the companies;
- .Profit levels are highly sensitive to changes in product mix with the highest value-added products generating the highest profits. During 1970, certain plants have obtained large export orders for communication cable which has a

relatively low copper content and a high-value added. These unusually large orders result from a rapid up-dating and expansion of communication facilities in the United States. This large rise in export volume has appreciably increased profits in the first half of 1970;

- .The net result of these developments in 1970 is that earnings on domestic sales are expected to be below 1969 levels. Earnings for those firms with export sales of communications cable will be improved because of unusual volume and product mix. A number of other firms will realize smaller returns on their 1970 operations than they realized in 1969.

The Commission's analysis of financial data for brass mills showed the following:

- .Price increases made in March, 1970, result from the producer price increase of two cents per pound on March 1, 1970;
- .Price increases made at that time are estimated to be less than increased costs associated with the higher copper price and there was no change in the converting cost component of brass mill prices;
- .Original forecasts made by brass mills for their 1970 operations indicated that 1970 would compare favorably with 1969. Their volume of business has, however, fallen below expectations;
- .As a result of these developments, profit margins for brass mills in 1970 are expected to fall below 1969 levels.

Since the companies submitted their 1970 revenue cost data, their prospects appear to have worsened due to the floating of the Canadian dollar.

The examination conducted by the Commission indicated that the companies reviewed have absorbed cost increases for labor, overhead and materials other than copper in 1970. Price increases made in March are therefore within the Commission's price restraint criteria. The Commission will, however, keep prices of fabricated copper products under review to determine whether they continue to reflect changes in the price of refined copper.

CONCLUSIONS

This study was undertaken following Government actions in February and April of 1970 to stabilize the domestic price of refined copper at 59 cents per pound and to ensure a supply of 23,500 tons of refined copper monthly to domestic industry at this price. These actions followed some six years of Government intervention in copper marketing made necessary by the existence of a tiered-price system. The purpose of this study was to assess the impact of stabilizing the copper price on domestic fabricators and manufacturers of copper products and on the domestic price restraint program generally. The Commission also recognized the serious problems of supply allocation posed by any tiered-price system and undertook to examine this aspect of the copper industry.

The conclusions of this study follow:

- .Stabilizing the domestic price of refined copper at 59 cents a pound made an important contribution to the domestic price restraint program as an increase in this price is directly reflected in costs and prices of high-copper content goods.
- .The existence of a tiered-pricing system facilitated stabilizing the refined copper price during 1970. Restraining the price, however, served to accentuate the problems of supply allocation which have existed for several years under this tiered-price system.

- .Supply arrangements made necessary by a tiered-pricing system discriminate among producers and discourage the processing of copper in Canada.
- .Government intervention in copper marketing has been largely directed at the unwillingness of producers to supply fully the copper requirements of domestic industry at a producers' price which has generally been below the available export price.
- .Supplying refined copper to domestic industry at a price which has usually been related to the prevailing United States' producer price has maintained the competitive position of Canadian manufacturers and fabricators in the North American market. In the short run these arrangements are generally beneficial to Canadian industry.
- .A domestic copper price lower than the United States' producer price would permit Canadian fabricators and manufacturers to expand sales and profits in markets in which they would not normally be competitive.
- .Uncertainties of copper supply resulting from a tiered-price system are unfavorable to the long-run development of efficient copper-using industries in Canada.
- .Copper fabricators increased their prices in March, 1970, to reflect the increase in the domestic producers' price of refined copper at that time. Price increases announced by fabricators were sufficient to recover only increased copper costs and fabricators have

absorbed other cost increases. Price increases made in March by the nine firms reviewed thus comply with the Commission's price restraint criteria.
